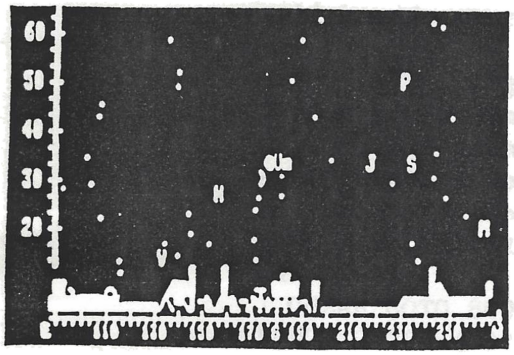
CELESTIAL BASIC USERS GROUP



NEWSLETTER

from Eric Burgess F.R.A.S.

31 AUGUST 1983- CBUSER2

A SERVICE TO USERS OF CELESTIAL BASIC BY ERIC BURGESS F.R.A.S.

13361 Frati Lane, Sebastopol, CA 95472 707 874-2352

I appreciate the letters and phone calls in connection with my book and plan to keep readers of the book and users of the diskettes updated on improvements and debugging when appropriate. This is the second Bulletin. If you have not had a copy of CBUSER1 please write and send me a stamped addressed envelope.

CALDR The following improvements have been suggested by Richard Dodge of Stockton. To give a Leap Year correction for the year 2000 which will be a Leap Year, the following lines should be added to the program.

```
525 IF Y/400 - INT(Y/400) = Ø THEN LY=1
2284 IF Y/400 - INT(Y/400) = Ø THEN LY=1
```

Other improvements are;
Change line 2590 to read

```
2590 IF LY=1 AND D<1 THEN D = D+29:M=2:GOTO2610
```

Change line 2690 to read

```
2690 IF DF<1 THEN M=M-1:DF=DF+31
```

Add the following line

```
2724 GOSUB 3480
```

These changes will prevent some days becoming minus on certain years.
The Leap Year correction can be included in several other programs by adding the same code as line 525 in CALDR in programs as follows;
RADEM, add line 495
PRISE, add line 505
JSATS, add line 435
MERVE, add line 2625
In JSATS the cosmetics can be improved by adding TAB(5) at the start of line 220.
In PLNTF line 760 should end with GOTO750 at the end of the statement instead of GOTO879
The colon should be removed from line 550
Mr. Dodge has also developed star tables for SKYSET updated to

1980 epoch and some corrections to the 1950 epoch tables. These will be discussed in the next issue of the Bulletin.

CONST - The program suffers from an out-of-memory error which occurs after about 20 to 25 constellations have been shown. The recommended method of clearing the memory as advised in the Apple™ manuals does not work. Tom Lorenzin of Charlotte has suggested the following workaround which allows uninterrupted access to all 42 constellations and stars; and this does work.
Add lines
```
1 ONERR GOTO 8000
8000 EC=PEEK(222)
8010 IF EC<>77 THEN POKE 216,0
8020 RUN 420
```
Make the following changes
```
420 Z=(PEEK(78)+256*PEEK(79))/10000
430 C=RND(-Z)*42
7680 :
```
JULDY - Change lines to;
```
440 JD=JD+2399999.5
480 PRINT"JULIAN DAY IS ";JD;" AT MIDNIGHT"
```
Add
```
482 PRINT TAB(18)"OR"
484 JD=JD+.5
486 PRINT:PRINT TAB(15)JD;" AT NOON"
```

On some programs where a string has been used to limit the number of decimal places to which answers are displayed, the computer will sometimes print a long string of zeros and upset the tabular display. This can be avoided by eliminating the VAL in the expression and merely printing the value as a string. This applies in RADEC lines 1010,1020,1030, and 1040, and PHOTO lines 1190 and 1260.
EPOCH - add the following line to prevent problems when the declination becomes negative, i.e. south.
```
545 IF DC<Ø THEN MC=-MC:SC=-SC
```
PLNDT - change line 3480 to read GOSUB7020
RISES - add a line;
```
825 NI=NI+LO/360
```
Change the following line to read as follows;
```
2170 V(3) = SIN(A(3)+3.14159)*23.44194
```
SKYSET - change the constants in the following lines to read as shown;
```
4410 GOSUB 4300:NS=G-722901
4430 T2=SG*NS+11.927485+(((ZN+T1)/24)*SG)+T1
```

Diskettes distributed after 1 August contain all the above changes.
Since the issue of the first Bulletin, 20 of the programs for CELESTIAL BASIC have been translated into Timex/Sinclair BASIC and have been published by SYBEX as "More Uses for your Timex/Sinclair - Astronomy on Your Computer" by Eric and Howard Burgess. Notes on these programs will be included in future issues of the Users` Group Bulletin.